REMARKS

Claims 7-12 currently appear in this application. The Office Action of November 23, 2007, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Specification

The specification is objected to as being unclear regarding Figures 1 and 2.

The specification has been amended to recite that they were obtained by the present inventors.

The specification has been amended to read more smoothly and better to explain the invention, incorporating the Examiner's suggestions.

With respect to step f of claim 7, according to the formulas stipulated in step f of claim 1, the relative light intensity that has undergone, and therefore there is no need to calibrate the intensity of the incident light.

Information Disclosure Statement

The Examiner has requested copies of the references most pertinent to the instant application, particularly those of Nekrasov.

The specification has now been amended to include this information. The source references cited in Beyerman's monograph are inserted as well. Because the simultaneous use of spectroscopic methods is not described in the Beyermann study, paragraph 0021 of the specification ahs been amended to recite "A complex analysis using several complementary methods promotes increasing responsiveness and selectivity of the method (Beyermann, 1982)."

Rejections under 35 U.S.C. 112

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection is respectfully traversed. Claims 1-6 have been replaced by new claims 7-12. New claims 7-12 have been submitted to incorporate the Examiner's helpful suggestions regarding the claim language. It is believed that it was clearer to submit new claims rather than to attempt to amend the original claims.

Art Rejections

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown, U.S. 5,121,337 in view of Voropai et al., *J. Appl. Spect.*, 2000. The Examiner concedes that Brown does not disclose performing absorption and luminescence spectroscopic analysis with the same samples, nor does Brown specifically teach analysis of multicomponent mixtures of impurities in aqueous systems.

This rejection is respectfully traversed.

The procedure for measuring the intensity of the probing beam I_o and of the luminescent light analyses is clear when examining Figures 3b and 3c. The absolute value of the intensities are not measured, but rather the measurements of the absolute value of intensities of light passed through a sample, luminescent light, and light from Raman scattering with respect to the probing beam are measured.

λ_1, λ_2, ... λ_m - are values of the readings of row **m**, and λ_1, λ_2, ... λ_n - are the values of the readings of row **n**, that is λ_1, λ_2 of row **m** are not the same with λ_1, λ_2 of the row **n**.

The following are quotes from the Brown's patent as an example of such indexation

"1.2.4 An Orthonormal Set of Vectors

A set of vectors $\mathbf{u}_1$, $\mathbf{u}_2$, ... $\mathbf{u}_n$, form an orthonormal set if the dot products $u_i^t u_i = 1$ and $u_i^t u_j = 0$ for $_i$ not equal

to $_j$ where $_i$ and $_j$ run from $_1$ to $_n$. The individual vectors are normalized, and the dot products between any two different vectors is equal to zero."

And here there is another quotation from the same study:

"An alternative, equivalent, and preferred method for developing a Constrained Principal Components model involves orthogonalizing the spectra in X to the measurement process signals in M prior to the development of the model. X is a f by n matrix containing the spectra of the n reference samples at f frequencies. M is a f by s matrix containing the spectra of the s measurement process signals at the f frequencies. The first step in the process is to derive a set of orthogonal vectors, the columns of the matrix U_m, that represent the original measurement process signals in M. This can be accomplished by either using a Gram-Schmidt orthogonalization procedure, a singular value decomposition of M, or some combination of the two. For example, the singular value decomposition of M would yield

$M=U_m \Sigma_m V_m^t$

where U_m is f by s, Σ is s by s, and V_m is s by s. Each spectrum in X is then orthogonalized to the columns of U_m to obtain the corrected spectra, X_c. If x_1 is the first spectrum in X, and $\mathbf{u_1}$, $\mathbf{u_2}$, . . . $\mathbf{u_s}$ are the orthogonalized

measurement process signals, then the first corrected spectrum, c_1, is given by …."

Lengths of waves of a luminescence can coincide with length of a wave of a luminescence. It takes place in anti-acidic areas of a spectrum well-known to experts.

Experts also know, that luminescent light is detected with the help of spectral area in which the object is capable TO LET out optical radiation. This range is detected by fundamental laws (for example. such, as a rule of stoke, and Vavilov's law) and by the contents of object. The length of a wave of exciting light defines only the relative intensity of this radiation.

The way the light passed through the sample as well as the luminescence light is clearly seen from the specification "Detailed description of the invention" and from Fig 3.

According to formulas, given in step f. of claim 1 the relative intensities of light which has had interaction with a sample are analyzed in the offered technical decision, therefore it is not required to conduct the procedure of calibration of intensity of incident light, of both passed and reflected light and luminescence light, analysis of which is discussed as well in the further steps

It is respectfully submitted that the Examiner has misread the meaning of the term δ in the right part of the mathematical expression opening an essence of step g. of claim 7. This term characterizes the size of maximum deviations of measured values that correspond to intensity of light in the spectrums of compared samples, but not the disorder of the qualitative and quantitative contents of individual chemical a components contained in these samples.

Brown is not relevant to the herein claimed method because Brown relates essentially to the correction of spectral data to minimize the experimental errors directly during the measurements with the use of specifically chosen calibrating samples in order to construct the predicting models that are applicable to the further realization of the mathematical procedures of a method of the main things the principal requirement of which is the orthogonalization of the comparable matrixes (See for example: R.A. Fisher. *Statistical methods for research workers*. Oliver and Boyd, Edinburgh.1925; T. Næs et al. Comparison of linear statistical methods for calibration of NIR instruments. *Appl. Stat.*, **35**, 195, 1986).The method claimed herein is devoted to authenticating the composition of multicomponent mixtures and/or detecting the presence of impurities in multicomponent mixtures directly in the course of measurements, and does not demand the use of

any predicting models and has nothing in common with the mathematical procedures used in the study by Brown quoted by the Examiner.

Voropai et al. (J. Appl. Spectr, 2000) does not supply the elements missing from Brown to arrive at the herein claimed method because Voropai used three-dimensional spectra for defining the contents of the individual chemical compounds possessing structural spectra. The presently claimed method does not impose any restrictions on character of framework of spectrums of analyzed systems. Besides according to prior art the approach used by Voropai et al. cannot be used for complex multicomponent mixtures.

The following conclusion arising form prior art methods is given in the paragraph [0012] of the specification of our application for a patent: …"as stated in (Siegel J.A. et al, Forensic Sci., 1985, v. 30, № 3, p. 741) …analysis by three-dimensional spectra for mixtures containing more than three components presents a quite insoluble problem…".

The given arguments specify that none of the above mentioned methods cannot be modified for realization of the method claimed herein.

In conclusion the inventors consider it necessary to express gratitude to the Examiner for the attentive,

scrupulous analysis of the application and for the stated valuable advice and remarks.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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